



# SPEC® OMPG2012 Result

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## Supermicro

SuperServer SYS-241H-TNRTP (Intel Xeon Platinum 8490H)

SPECompG\_peak2012 = Not Run

SPECompG\_base2012 = 70.8

OMP2012 license:001176

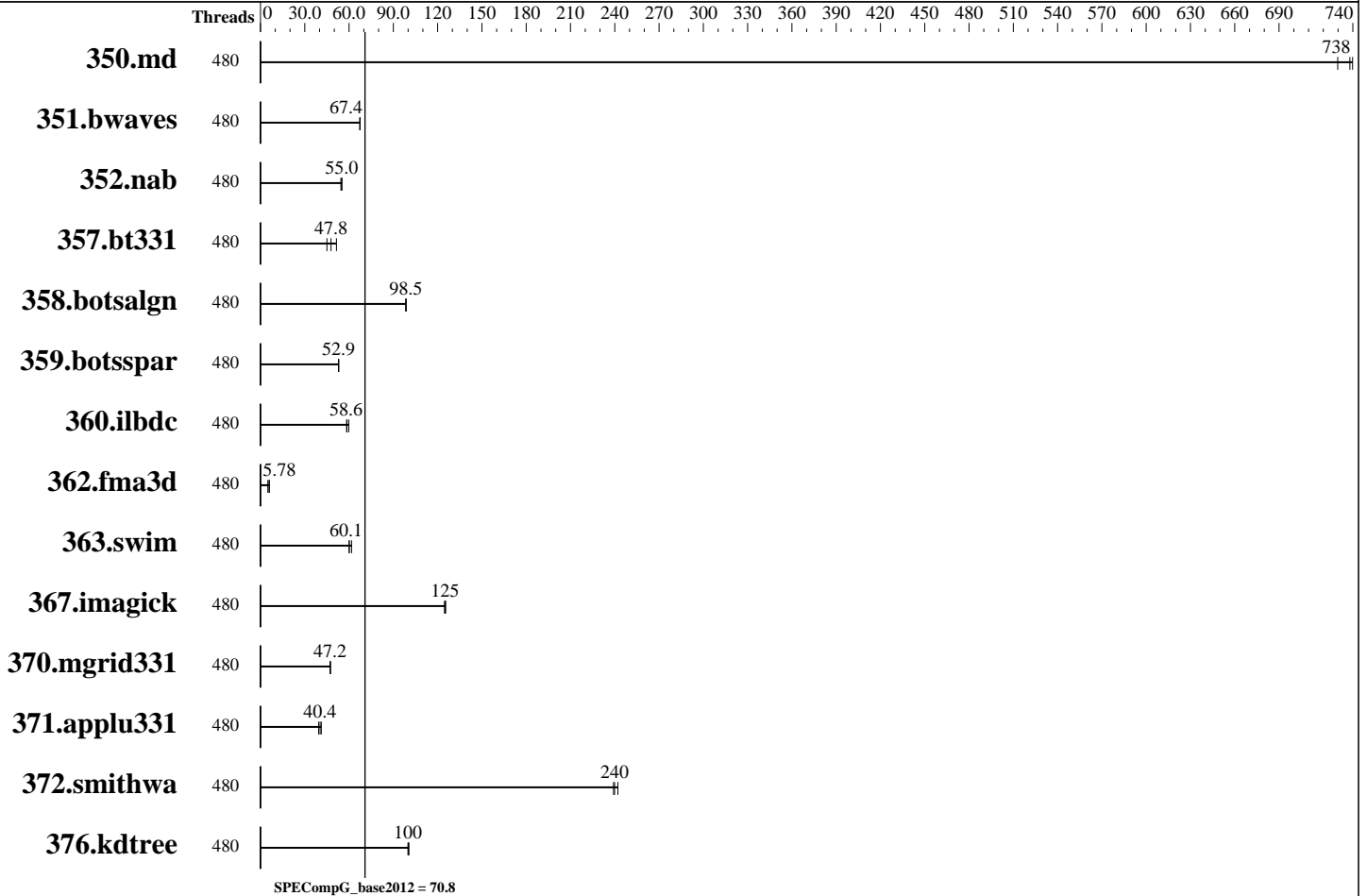
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Apr-2023

Hardware Availability: Apr-2023

Software Availability: Apr-2023



### Hardware

CPU Name: Intel Xeon Platinum 8490H  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz  
 CPU MHz: 1900  
 CPU MHz Maximum: 3500  
 FPU: Integrated  
 CPU(s) enabled: 240 cores, 4 chips, 60 cores/chip, 2 threads/core  
 CPU(s) orderable: 4 chips  
 Primary Cache: 32 KB I + 48 KB D on chip per core  
 Secondary Cache: 2 MB I+D on chip per core  
 L3 Cache: 115200 KB I+D on chip per chip  
 Other Cache: None  
 Memory: 2.0 TB (32 x 64 GB 2Rx8 PC5-4800B-R)  
 Disk Subsystem: 1 x 1.92 TB NVME SSD  
 Other Hardware: None  
 Base Threads Run: 480  
 Minimum Peak Threads: --

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### Software

Operating System: SUSE Linux Enterprise High Performance Computing 15 SP4 5.14.21-150400.22-default  
 Compiler: C/C++/Fortran: Version 2023.0.0.20221208 of Intel oneAPI DPC++/C++  
 Auto Parallel: No  
 File System: btrfs  
 System State: Jun-2022  
 Base Pointers: 64-bit  
 Peak Pointers: Not Applicable  
 Other Software: None



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Maximum Peak Threads: --

## Results Table

| Benchmark    | Base    |             |             |             |             |             |             | Peak    |         |       |         |       |         |       |
|--------------|---------|-------------|-------------|-------------|-------------|-------------|-------------|---------|---------|-------|---------|-------|---------|-------|
|              | Threads | Seconds     | Ratio       | Seconds     | Ratio       | Seconds     | Ratio       | Threads | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 350.md       | 480     | <b>6.27</b> | <b>738</b>  | 6.34        | 730         | 6.26        | 740         |         |         |       |         |       |         |       |
| 351.bwaves   | 480     | 67.2        | 67.5        | 67.3        | 67.3        | <b>67.2</b> | <b>67.4</b> |         |         |       |         |       |         |       |
| 352.nab      | 480     | <b>70.7</b> | <b>55.0</b> | 70.5        | 55.2        | 71.4        | 54.5        |         |         |       |         |       |         |       |
| 357.bt331    | 480     | 92.1        | 51.5        | 105         | 45.0        | <b>99.2</b> | <b>47.8</b> |         |         |       |         |       |         |       |
| 358.botsalgn | 480     | 44.1        | 98.7        | <b>44.2</b> | <b>98.5</b> | 44.2        | 98.4        |         |         |       |         |       |         |       |
| 359.botsspar | 480     | <b>99.2</b> | <b>52.9</b> | 99.1        | 53.0        | 99.3        | 52.9        |         |         |       |         |       |         |       |
| 360.ilbdc    | 480     | 61.0        | 58.3        | 59.5        | 59.8        | <b>60.8</b> | <b>58.6</b> |         |         |       |         |       |         |       |
| 362.fma3d    | 480     | 764         | 4.97        | 632         | 6.01        | <b>657</b>  | <b>5.78</b> |         |         |       |         |       |         |       |
| 363.swim     | 480     | <b>75.3</b> | <b>60.1</b> | 75.4        | 60.1        | 73.4        | 61.7        |         |         |       |         |       |         |       |
| 367.imagick  | 480     | <b>56.2</b> | <b>125</b>  | 56.4        | 125         | 56.0        | 125         |         |         |       |         |       |         |       |
| 370.mgrid331 | 480     | 93.2        | 47.4        | <b>93.6</b> | <b>47.2</b> | 93.8        | 47.1        |         |         |       |         |       |         |       |
| 371.applu331 | 480     | <b>150</b>  | <b>40.4</b> | 147         | 41.2        | 154         | 39.4        |         |         |       |         |       |         |       |
| 372.smithwa  | 480     | <b>22.3</b> | <b>240</b>  | 22.1        | 242         | 22.4        | 239         |         |         |       |         |       |         |       |
| 376.kdtree   | 480     | 44.7        | 101         | <b>45.0</b> | <b>100</b>  | 45.0        | 100         |         |         |       |         |       |         |       |

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Platform Notes

Sysinfo program /home/omp2012\_3/Docs/sysinfo  
Revision 563 of 2016-06-10 (097295389cf6073d8c3b03fa376740a5)  
running on 135-213 Tue Apr 4 11:26:46 2023

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:  
<http://www.spec.org/omp2012/Docs/config.html#sysinfo>

From /proc/cpuinfo

```
model name : Intel(R) Xeon(R) Platinum 8490H
4 "physical id"s (chips)
480 "processors"
```

cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)

```
cpu cores : 60
siblings : 120
physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46
47 48 49 50 51 52 53 54 55 56 57 58 59
physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46
47 48 49 50 51 52 53 54 55 56 57 58 59
```

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### Platform Notes (Continued)

```
physical 2: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46
47 48 49 50 51 52 53 54 55 56 57 58 59
physical 3: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46
47 48 49 50 51 52 53 54 55 56 57 58 59
cache size : 115200 KB
```

```
From /proc/meminfo
MemTotal:      2112909432 kB
HugePages_Total:      0
Hugepagesize:    2048 kB
```

```
From /etc/*release* /etc/*version*
os-release:
NAME="SLES"
VERSION="15-SP4"
VERSION_ID="15.4"
PRETTY_NAME="SUSE Linux Enterprise Server 15 SP4"
ID="sles"
ID_LIKE="suse"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:15:sp4"
```

```
uname -a:
Linux 135-213 5.14.21-150400.22-default #1 SMP PREEMPT_DYNAMIC Wed May 11
06:57:18 UTC 2022 (49db222) x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Apr 4 11:21 last=5
```

```
SPEC is set to: /home/omp2012_3
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/nvme0n1p3 btrfs    1.8T   38G  1.8T   3% /home
```

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

BIOS American Megatrends International, LLC. 1.2 03/17/2023  
Memory:  
32x Micron Technology MTC40F2046S1RC48BA1 64 GB 2 rank 4800 MT/s

(End of data from sysinfo program)

### General Notes

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BIOS Setting:  
Power Performance Tuning = BIOS Controls EPB  
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## General Notes (Continued)

ENERGY\_PERF\_BIAS\_CFG Mode = Extreme Performance  
UMA-Based Clustering = Disable (All2All)

### General OMP Library Settings:

```
ENV_KMP_LIBRARY           = turnaround
ENV_KMP_BLOCKTIME         = infinite
ENV_OMP_STACKSIZE         = 500M
ENV_OMP_SCHEDULE          = static
ENV_OMP_NESTED             = FALSE
ENV_OMP_DYNAMIC           = FALSE
ENV_KMP_AFFINITY          = compact,0
```

NA: The test sponsor attests, as of date of publication, the CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.  
Yes: The test sponsor attests, as of date of publication, the CVE-2017-5753 (Spectre variant 1) is mitigated in the system as tested and documented.  
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Spectre variant 2) is mitigated in the system as tested and documented.

### OS tuning:

Stack size set to unlimited using "ulimit -s unlimited"

### Invocation command line:

```
runspec --config=config.cfg --flagsurl=supermicro-oneAPI.xml
--flagsurl=Supermicro-Platform-Settings-V1.2-SPR-revC_OMP.xml
--define half=240 --tune=base --reportable --iterations=3 --threads=480 --size=ref all
```

## Base Compiler Invocation

C benchmarks:

icc

C++ benchmarks:

icpc

Fortran benchmarks:

ifort

## Base Portability Flags

```
350.md: -FR
357.bt331: -mcmmodel=medium
363.swim: -mcmmodel=medium
367.imagick: -std=c99
```



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## Base Optimization Flags

C benchmarks:

```
-O3 -qopenmp -ipo1 -xCORE-AVX512 -qopt-zmm-usage=high -shared-intel
-ansi-alias
```

C++ benchmarks:

```
-O3 -qopenmp -ipo1 -xCORE-AVX512 -qopt-zmm-usage=high -shared-intel
-ansi-alias
```

Fortran benchmarks:

```
-O3 -qopenmp -ipo1 -xCORE-AVX512 -qopt-zmm-usage=high -shared-intel
-align array64byte
```

The flags file that was used to format this result can be browsed at

<http://www.spec.org/omp2012/flags/Supermicro-ic2022.linux64-oneAPI.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/omp2012/flags/Supermicro-ic2022.linux64-oneAPI.xml>

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For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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